Experimental Confirmation of Deep Nulling

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Abstract:

Nulling interferometry has great potential in the search for planetary companions and exozodiacal disks, but the various schemes proposed rely heavily on unproven optical schemes. Here we report laboratory confirmation of deep nulling with a rotational shearing interferometer: we have nulled a red laser diode source to one part in 100000, and have stabilized the null to 1 part in 10000. With white light narrowed to a 5% bandwidth, we have achieved nulling to 1 part in 5000, with further progress foreseen.